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Executive Director GreenRoots



# Compromised Public Health





# CHELSEA AND EAST BOSTON

## Chelsea:

- 1.8 square miles
- 45,000+ residents
- 73% ethnic minorities
- 24% live below poverty line

## East Boston:

- 5 square miles
- 55,000+ residents
- 53% Latino
- 17% live below poverty line

# Disproportionate Environmental and Public Health Burdens



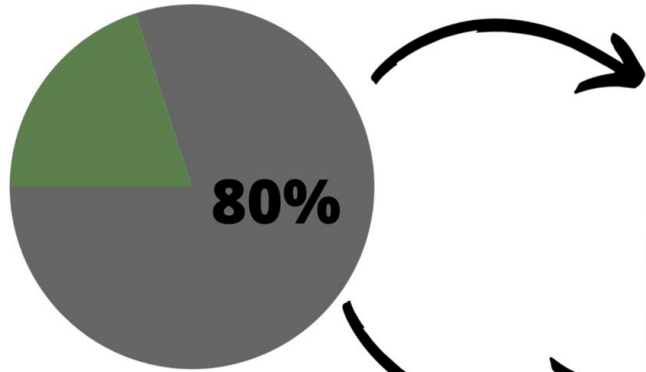


# New England Produce Center

2<sup>nd</sup> Largest Privately Owned in Produce Distribution Center in US



# 80% impervious surfaces



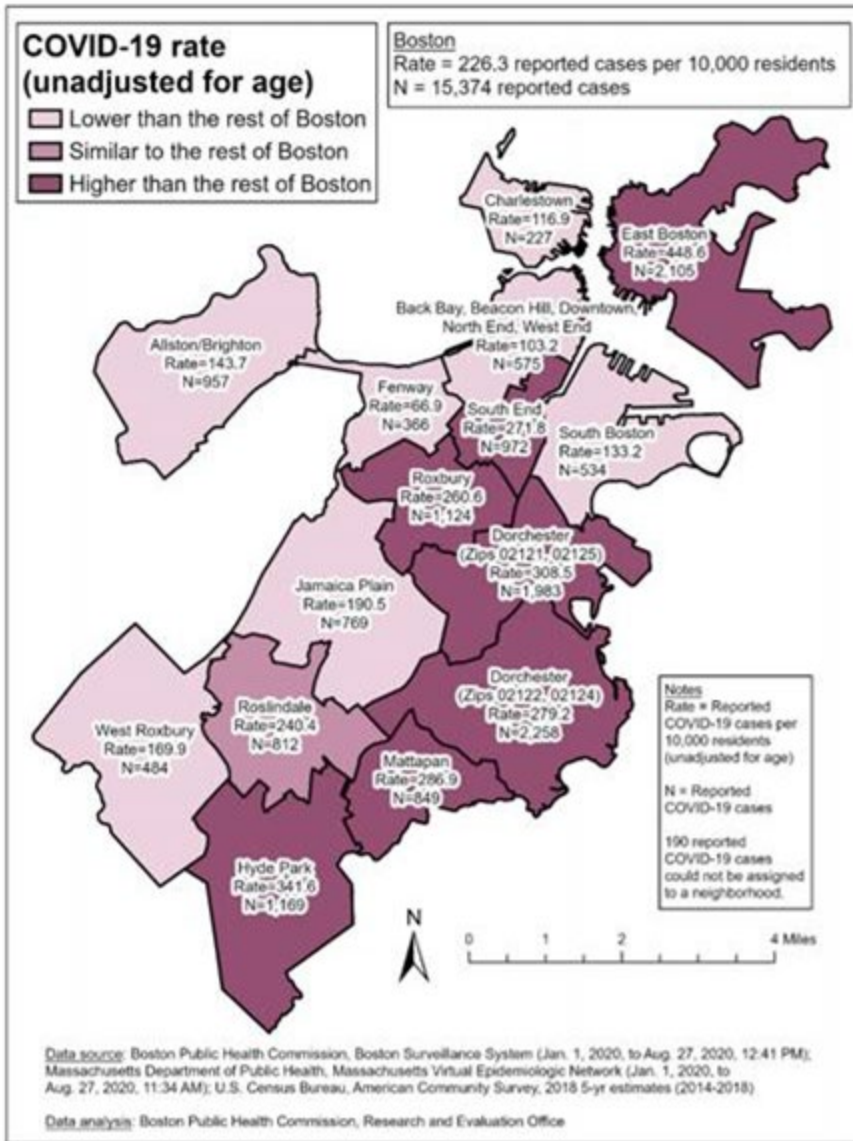
5% open / green space  
3% dedicated to parks



2% Tree Canopy



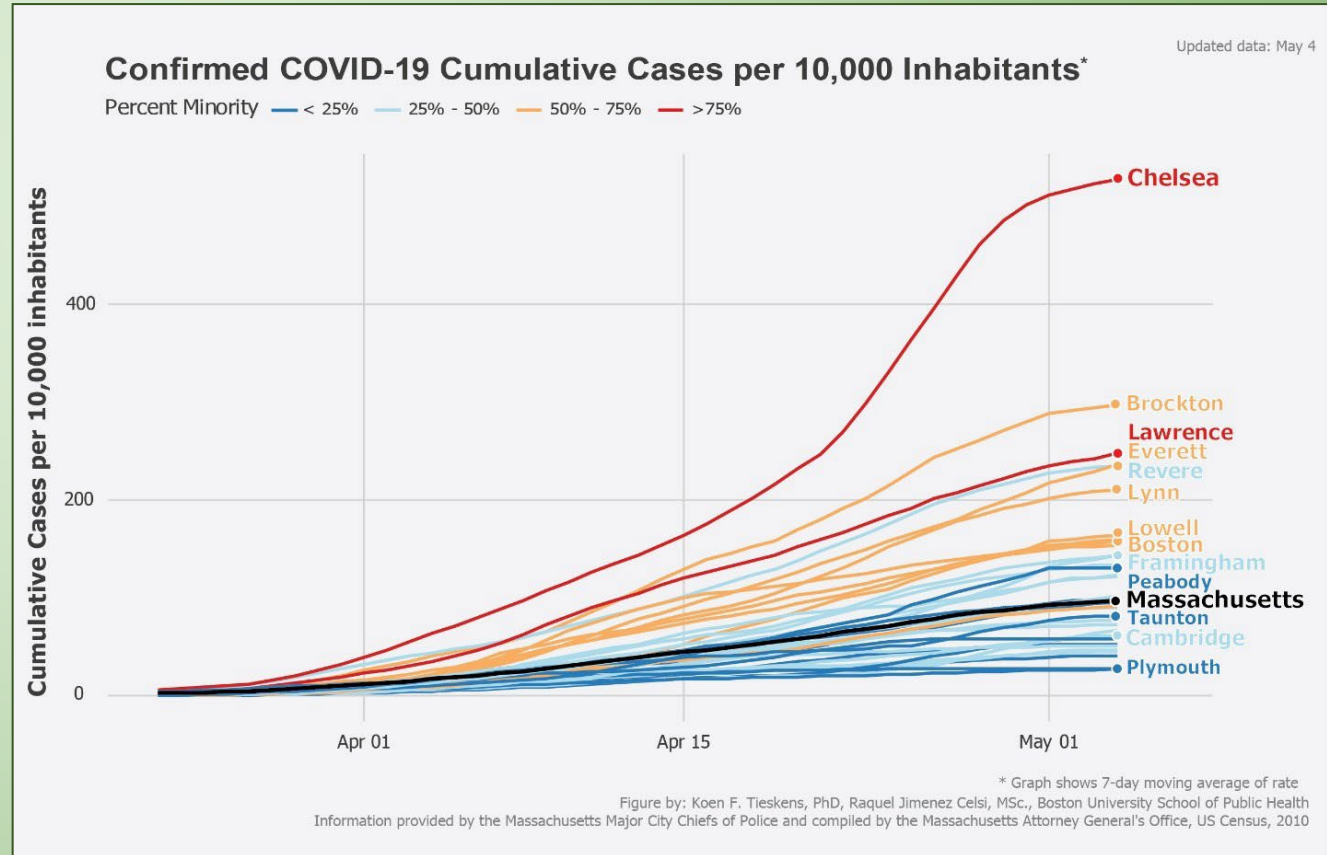
# East Boston



## CORONAVIRUS COVERAGE

# Healey Report Highlights COVID-19 Impact on Environmental Justice Communities

## Chelsea





# The Boston Globe

YVONNE ABRAHAM

## In Chelsea, the deadly consequences of air pollution

Coronavirus isn't just a health crisis in Chelsea. It's also an environmental one.

By [Yvonne Abraham](#) Globe Columnist, Updated April 29, 2020, 6:43 p.m.



## Massachusetts communities with dirty air are coronavirus hotspots

By [Zoe Greenberg](#) Globe Staff, Updated April 29, 2020, 7:33 p.m.

### BU Today

News, Opinion, Community

PUBLIC HEALTH

### BU Public Health Researchers Aid Chelsea, Epicenter of State's COVID-19 Outbreak

"Every person counts," says epidemiologist whose data show the city's rate of confirmed cases is higher than rates in Manhattan and Brooklyn

## CommonWealth

NONPROFIT JOURNAL OF POLITICS, IDEAS & CIVIC LIFE

## COVID-19's link to environmental racism

Even now it's happening along Chelsea Creek

wbur

## A Look Inside Chelsea, The State's Top Coronavirus Hotspot

# The New York Times

## *In a Crowded City, Leaders Struggle to Separate the Sick From the Well*

Chelsea, Mass., has an infection rate higher than any other community in the state. With families in cramped housing, it is difficult to contain the spread.

wbur

COMMENTARY

## You May Not Realize It, But Chelsea Makes Your Life Better. Now It's The Epicenter Of COVID-19 In Mass.

## The Washington Post

*Democracy Dies in Darkness*

## A Look Inside Chelsea, The State's Top Coronavirus Hotspot



# COVID-19 in Chelsea: A Glance Into One of the Hardest Hit Cities

And the Role of Intersecting Social Determinants of Health



**6x**  
At its peak in April 2020, Chelsea residents had six times the infection rate of COVID-19 than the rest of the state.

Chelsea, Massachusetts was one of the first cities in the nation to experience the catastrophic impacts of the COVID-19 pandemic. At its peak, Chelsea had the highest positivity rate in the state for months on end. As the early epicenter in Massachusetts, Chelsea had an infection rate equal to or surpassing most other regions in the nation. Factors such as an essential workforce, racial inequities, significant overcrowded housing, pre-existing health conditions, high rates of poverty, industrial pollution, and various other inequalities contributed to higher risk of infection, serious illness, and death. The city and its residents remain vulnerable to these inequities related to the social determinants of health.

*"The pandemic cannot be considered in isolation. The impacts of racism and discrimination on health are well established and measures must be taken to address the root causes of these disparities. At the same time, we need to urgently protect ethnic groups most at risk of adverse outcomes from COVID-19 [...]. The effects of racism, in particular systemic racism, are still not widely recognized and must be acknowledged by both healthcare professionals and policymakers so that more can be done to redress the balance and reduce these inequalities."*  
-Dr. Muhammad Basit, Researcher at St. George's University of London



**63,000** daily vehicular trips across the Tobin Bridge

**37,000** annual trucks to/from NEPC

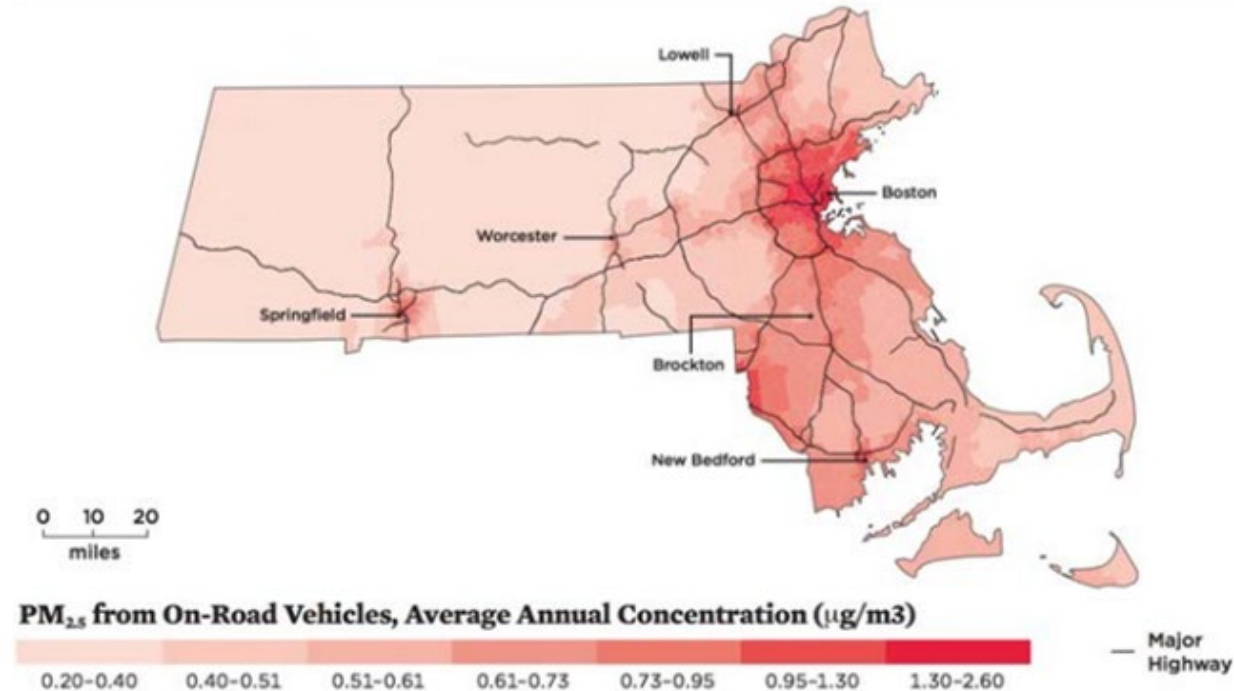
**20%** Chelsea exceeds EPA's diesel concentration level by 20%

**2x** Chelsea residents face nearly double the risk of air pollutants and approximately

**1.5x** the rate of cancer compared to all of MA



FIGURE 1. High Variation in Exposure to PM<sub>2.5</sub> Pollution from On-Road Vehicles in Massachusetts



**What could have been...**



What is...







Non-Road Worthy, Dirty Diesel Engines  
Operating 24/7



# Collaborative and Innovative Solutions



**Repowered/Retrofitted  
132 Dirty Diesel  
Engines**

**Eliminated 2,000 tons  
of annual air pollutants**

**Improved public health  
outcomes**

**Reduced health care  
costs**



**1 Stationary Air Quality Monitor**  
**9 Mobile Monitors**  
<https://fire.airnow.gov/>

# THE LOWDOWN ON CHELSEA'S AIR QUALITY

Chelsea ranks third in Massachusetts as the most intensively overburdened community for potential hazardous exposures due to the high density of environmentally hazardous industrial facilities and sites.

## 6 EXAMPLES OF AIR POLLUTANTS

Cause harm to human's health and the environment. Photochemical oxidants (including ozone), particulate matter, carbon monoxide, sulfur dioxide, nitrogen dioxide, and lead



## Chelsea TRANSPORTATION HUB

Located under major flight paths for Boston Logan International Airport; is home to the Tobin Bridge, connecting the North Shore to Boston through major highways, carrying 63,000 cars daily, and the New England Produce Center, which sees approximately 37,000 trucks annually.

### DID YOU KNOW?

In 2015 2.1 thousand tons of toxic waste was released into the air in Chelsea from two out of seven bulk petroleum storage facilities.



### ASTHMA HOSPITAL VISITS

In 2016, 91.1 per 10,000 people in Chelsea had an emergency department visit due to an asthma attack compared to the state rate of 61 per 10,000 people

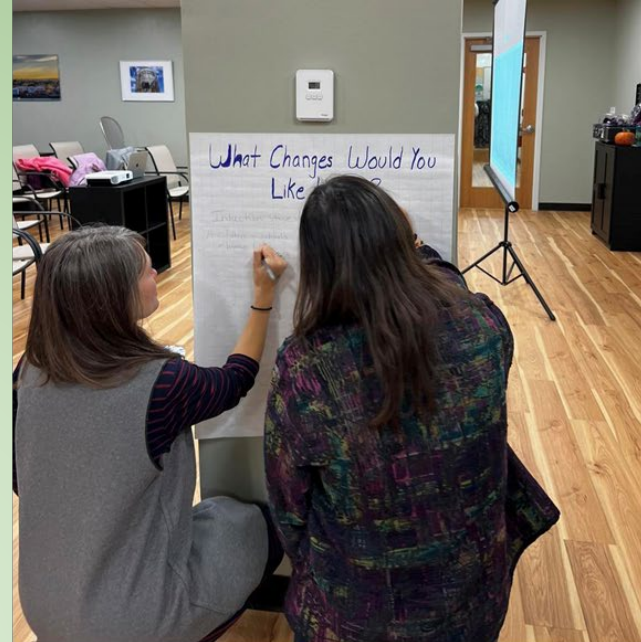


## IT'S TIME TO TAKE ACTION!

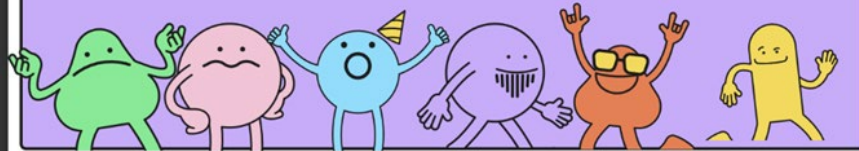
Contact Layne Benton at GreenRoots to learn more about what GreenRoots is doing about air quality.

### INFORMATION SOURCE

Rangadass, P., & Dominguez-Santos, L. (2021). COVID-19 in Chelsea: A Glance Into One of the Hardest Hit Cities and the Role of Intersecting Social Determinants of Health. GreenRoots, Inc.

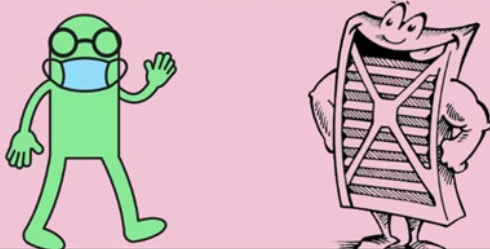


## THE LEAGUE OF AIR POLLUTANTS



Versus

## CHELSEA'S DEFENDERS



## THE LEAGUE OF AIR POLLUTANTS

I am the villain  
Photochemical Oxidant:  
I love to create ozone  
layers to make it hard to  
breathe



I am Particulate Matter:  
I am so small you cannot see  
me, and I love to travel  
through your nose



I am Carbon Monoxide:  
You cannot see me, smell me,  
or taste me. I am created  
anytime there is a fire.



They call me Lead:  
If you have too much of me  
in your body, I can cause  
you a lot of pain.



I'm the sneaky poisonous  
gas Sulfur Dioxide:  
You cannot see me, but I  
am very dangerous to  
breathe in.



I am Nitrogen Dioxide:  
I am a reddish-brown gas  
cloud that stinks.



## TAKING OVER CHELSEA

Chelsea is 3rd for asthma  
hospitalizations in MA.  
thanks to us.



About 17% of Chelsea has  
asthma. YOU ARE  
WELCOME!!!!  
MUHAHAHA



We are taking over Chelsea  
thanks to all of the  
airplanes, cars, semitrucks,  
and boats producing us  
outside daily.



In your homes we need to  
thank, asbestos, lead,  
mold, and burning flames.



Yes, gas stoves, candles,  
incense, and smoking  
produce our havoc on  
everyone in Chelsea.



WHO WILL STOP US?



## CHELSEA'S DEFENDERS

GreenRoots: WE WILL  
CONTINUE TO FIGHT FOR  
A SAFE AND HEALTHY  
CHELSEA!



Our voices will be heard as  
we make our stand against  
The League of Air  
Pollutants with Captain  
Air Filter.

I am Captain Air Filter: it is  
my responsibility to make  
sure that everyone has clean  
air in their homes.

The League of Air Pollutants  
trembles in my presence.  
Because of me they will not  
exist in your homes.



As a team we are working  
to get you more  
information about air  
quality.

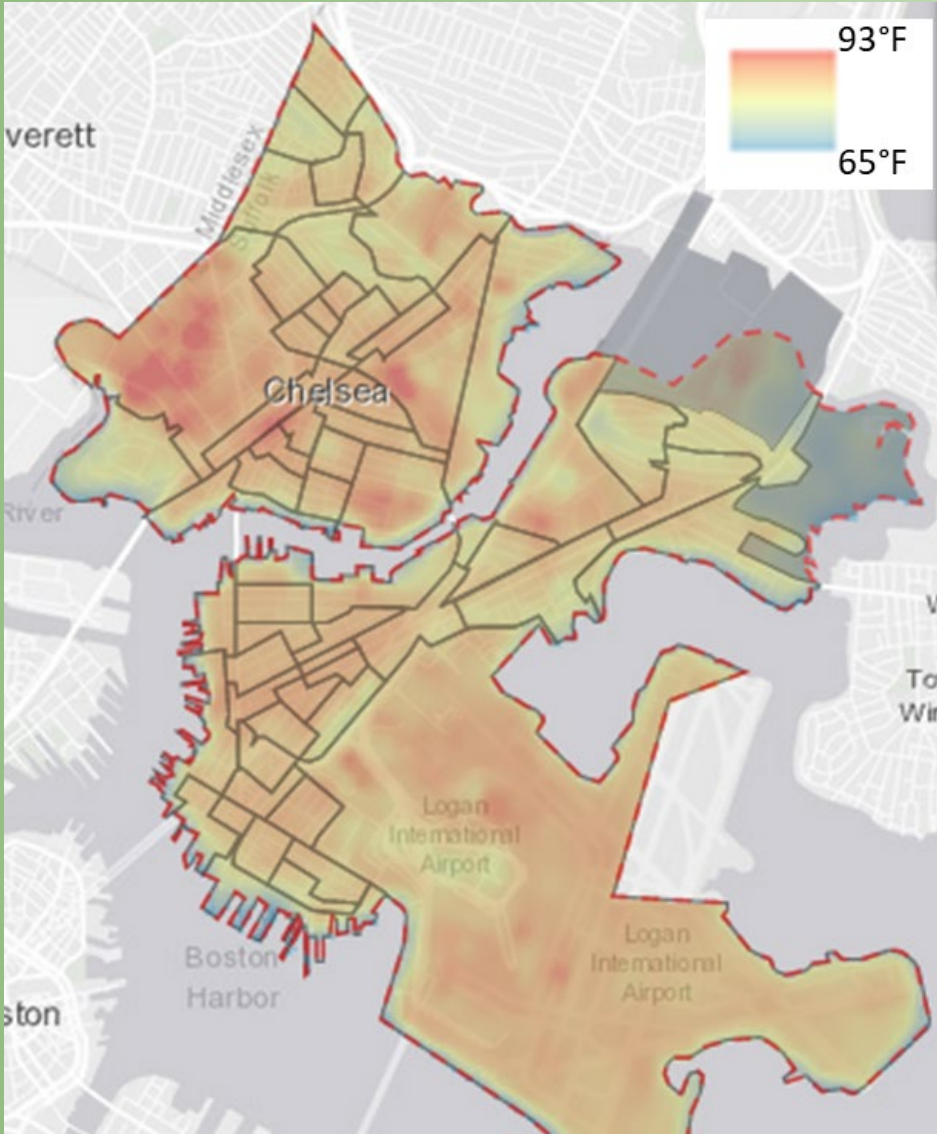


Together we can clean the  
air in Chelsea!!!

CHELSEA DESERVES  
CLEAN AIR!

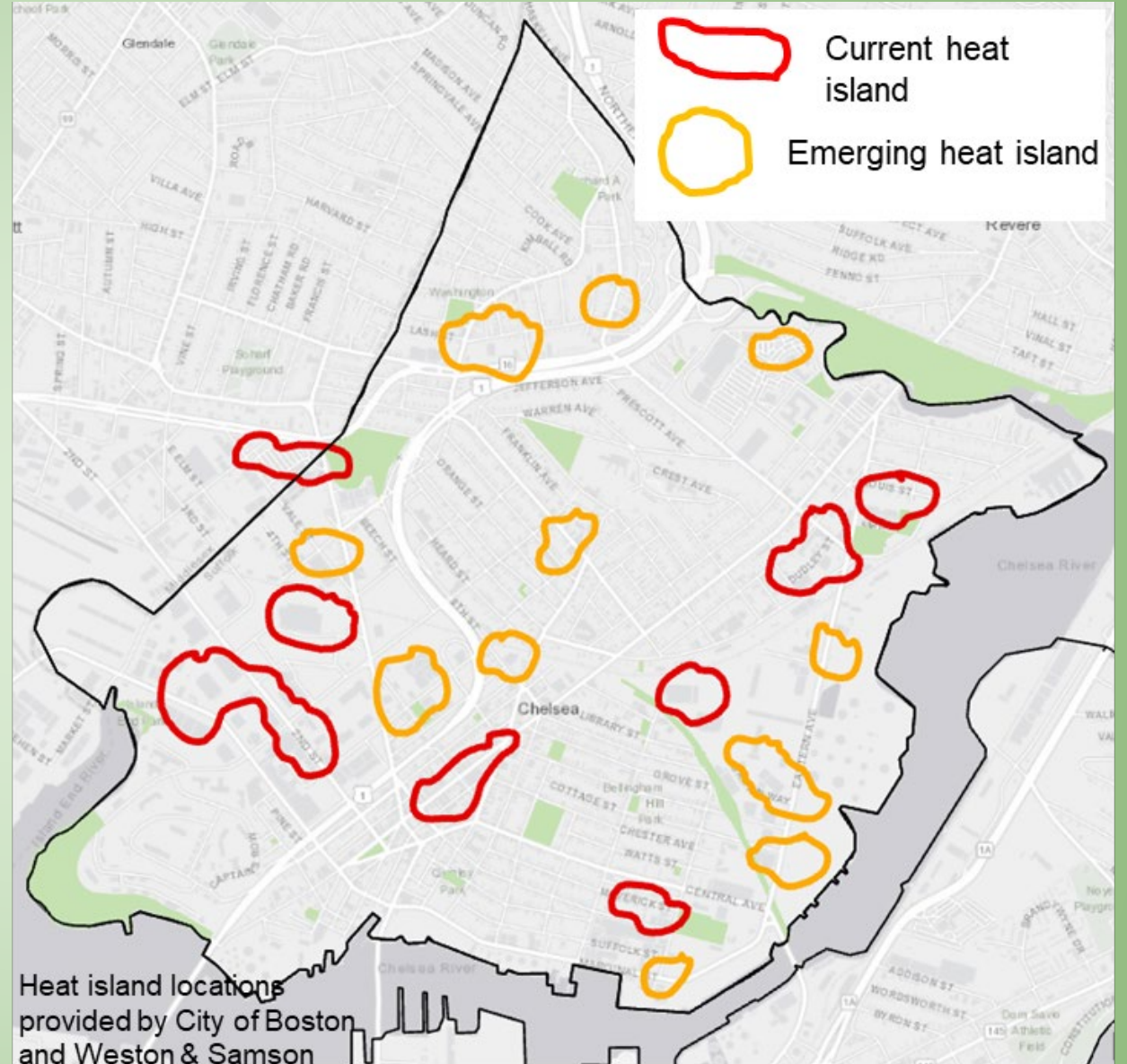


# Where are the city hot spots?



Land surface temperature map of Chelsea and East Boston, Massachusetts showing local heat islands. Source: Landsat 8, 30 meter resolution, Summer

# Future hot spots?

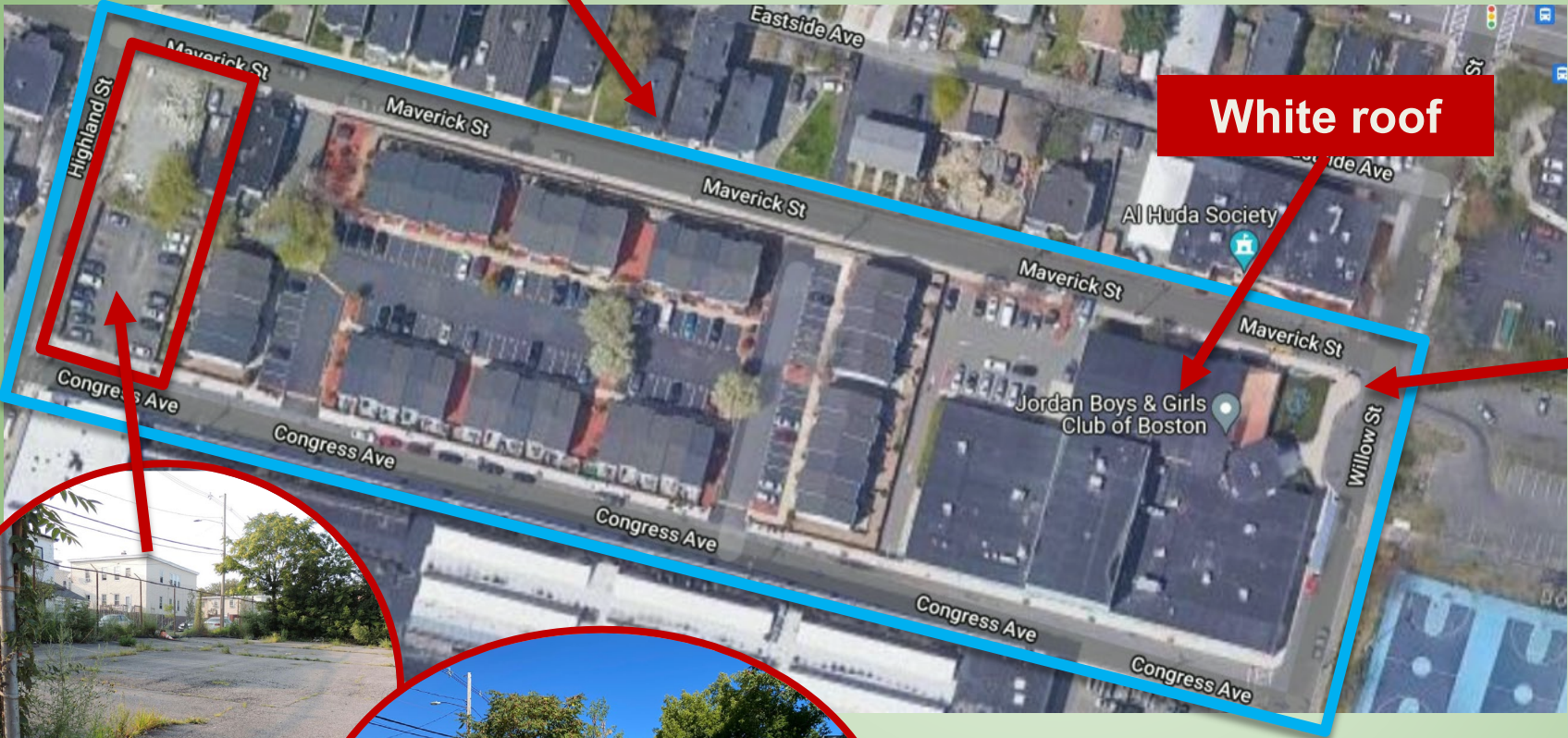


# Cool Block Initiative

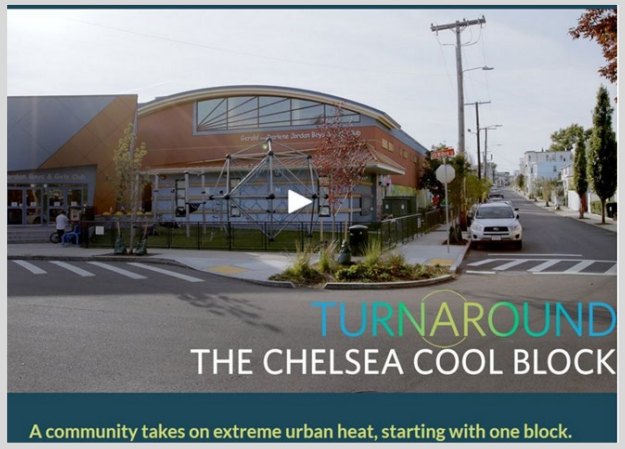
Tree planting & Tree Keepers

White roof

Reflective sidewalk



Empty lot reimagining





**2021**

April  
2022

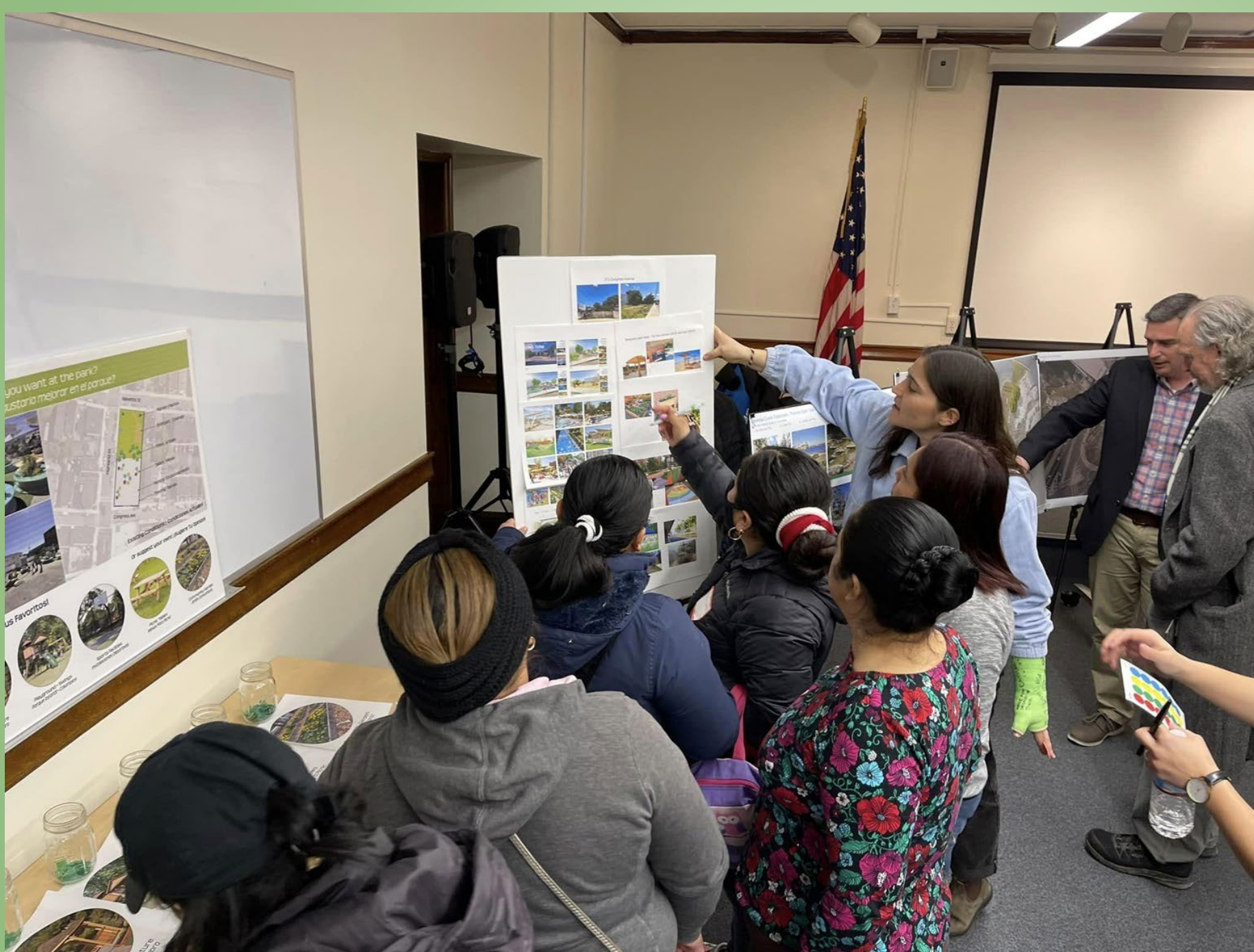






**Fall  
2022**





**March  
2023**





## Connect with Us



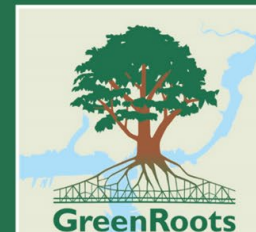
**@GreenRootsChelsea**



**@GreenRootsEJ**



**@greenrootschelsea**



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media!

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de nuestras redes  
sociales!